Stoller
Hanford Office

DOE-EM/GJ1067-2005

299-E26-73 (A6666)
Log Data Report

Borehole Information:

Borehole: 299-E26-73 (A7877)			**Site:** 216-A-24 Crib		
Coordinates (WA St Plane)		**GWL[1] (ft) :** None		**GWL Date:**	10/24/05
North	**East**	**Drill Date**	**Elevation (TOC)**	**Total Depth (ft)**	**Type**
136432.687	575973.255	08/83	636.772	60	Cable

Casing Information:

Casing Type	Stickup (ft)	Outer Diameter (in.)	Inside Diameter (in.)	Thickness (in.)	Top (ft)	Bottom (ft)
Welded steel	2.75	6 5/8	6 1/8	1/4	2.75	25

Borehole Notes:

Casing diameter and stickup measurements were acquired using a caliper and steel tape. Measurements are rounded to the nearest 1/16 inch. Logging data acquisition is referenced to the top of casing (TOC).

Spectral Gamma Logging System (SGLS) Equipment Information:

Logging System:	Gamma 1E		**Type:**	SGLS (70%) SN: 34TP40587A
Effective Calibration Date:	03/04/05	**Calibration Reference:**	DOE/EM-GJ864-2005	
		Logging Procedure:	MAC-HGLP 1.6.5, Rev. 0	

Spectral Gamma Logging System (SGLS) Log Run Information:

Log Run	**1**	**2 Repeat**			
Date	10/03/05	10/03/05			
Logging Engineer	Spatz	Spatz			
Start Depth (ft)	27.5	10.5			
Finish Depth (ft)	3.5	5.5			
Count Time (sec)	100	100			
Live/Real	R	R			
Shield (Y/N)	N	N			
MSA Interval (ft)	1.0	1.0			
ft/min	N/A[2]	N/A			
Pre-Verification	AE121CAB	AE121CAB			
Start File	AE121000	AE121025			
Finish File	AE121024	AE121030			
Post-Verification	AE122CAA	AE122CAA			
Depth Return Error (in.)	0	0			
Comments	No fine-gain adjustment	Repeat section			

Logging Operation Notes:

Logging was conducted with a centralizer on the sonde. Measurements are referenced to the top of casing. A repeat section was collected in this borehole to evaluate the logging system's performance.

Analysis Notes:

Analyst:	Pope	**Date:**	12/14/05	**Reference:**	GJO-HGLP 1.6.3, Rev. 0

Pre-run and post-run verifications for the logging system were performed before and after the day's data acquisition. The acceptance criteria were met.

A casing correction for 0.25-in.-thick casing was applied to the log data.

SGLS spectra were processed in batch mode using APTEC SUPERVISOR to identify individual energy peaks and determine count rates. Concentrations were calculated with an EXCEL worksheet template identified as G1EMar05.xls using efficiency functions and corrections for casing, water, and dead time as determined from annual calibrations. No corrections for dead time or water were necessary.

In 1994, RLS data were acquired using ground surface as the zero-depth reference. The RLS depths were adjusted upward by 2.75 feet to match the top-of-casing zero-depth reference of the 2005 SGLS log. The RLS data were decayed to 2005 for comparison with the recent SGLS data.

Results and Interpretations:

^{137}Cs was the man-made radionuclide detected in this borehole. ^{137}Cs was detected intermittently from 3.5 to 10.5 ft, and at 19.5 ft (below top of casing), with many measurements just above the MDL[3]. Based on reviews of the spectra, ^{137}Cs measurements near the MDL appear to be legitimate, except at 19.5 ft, which may be statistical noise. The maximum concentration was measured at approximately 0.5 pCi/g at 4.5 ft.

The repeat section indicates good agreement of the naturally occurring KUT and ^{137}Cs concentrations.

The comparison of SGLS and RLS ^{137}Cs concentrations show good agreement after correcting for decay, indicating no significant changes have occurred since 1994.

List of Plots:

Man-Made Radionuclides
Natural Gamma Logs
Combination Plot
Total Gamma & Dead Time
SGLS & RLS Comparison
Repeat of Man-Made Radionuclides
Repeat Section of Natural Gamma Logs

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[1] GWL – groundwater level
[2] N/A – not applicable
[3] MDL – minimum detection limit

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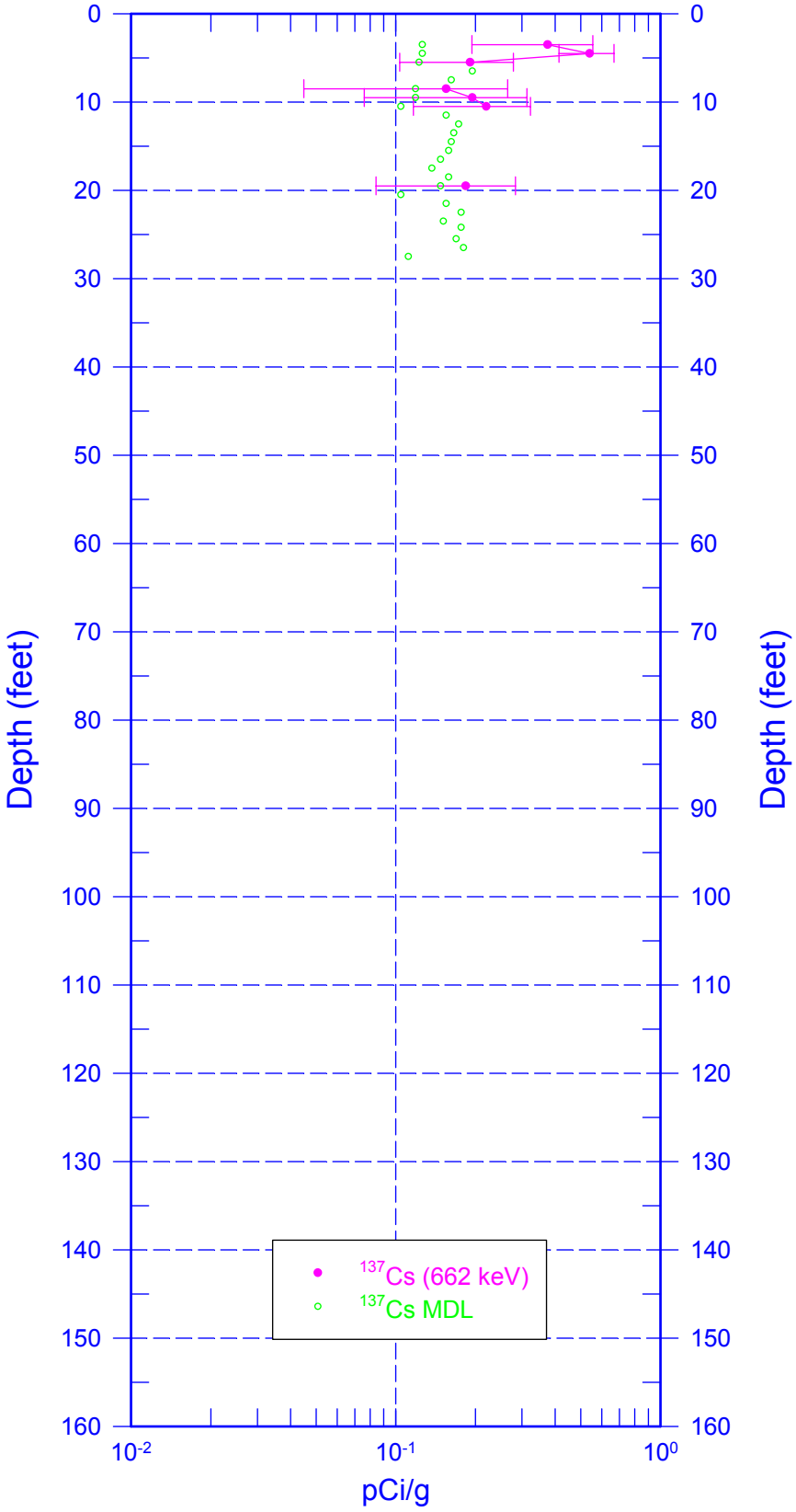
Man-Made Radionuclides



Zero Reference - Top of Casing

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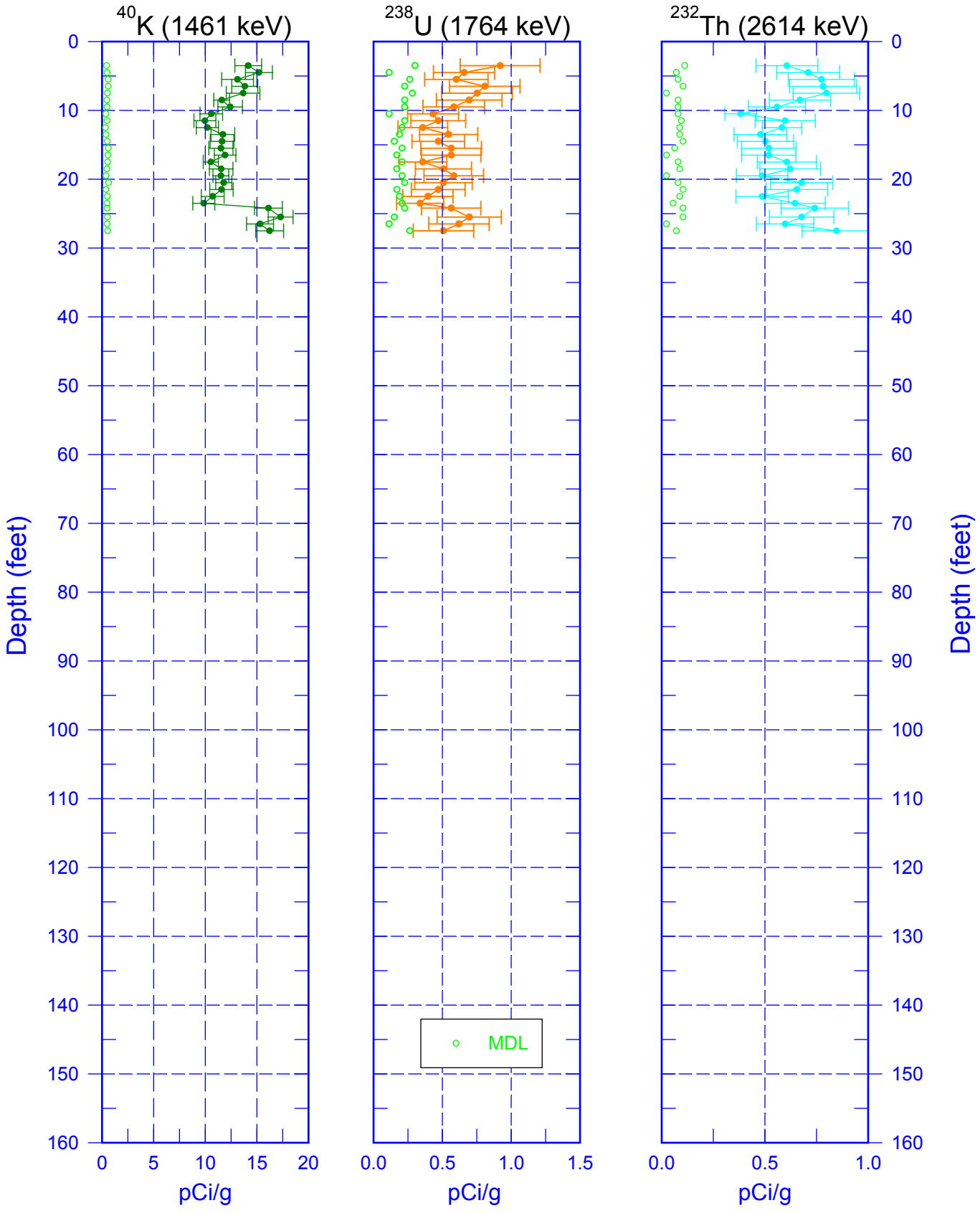
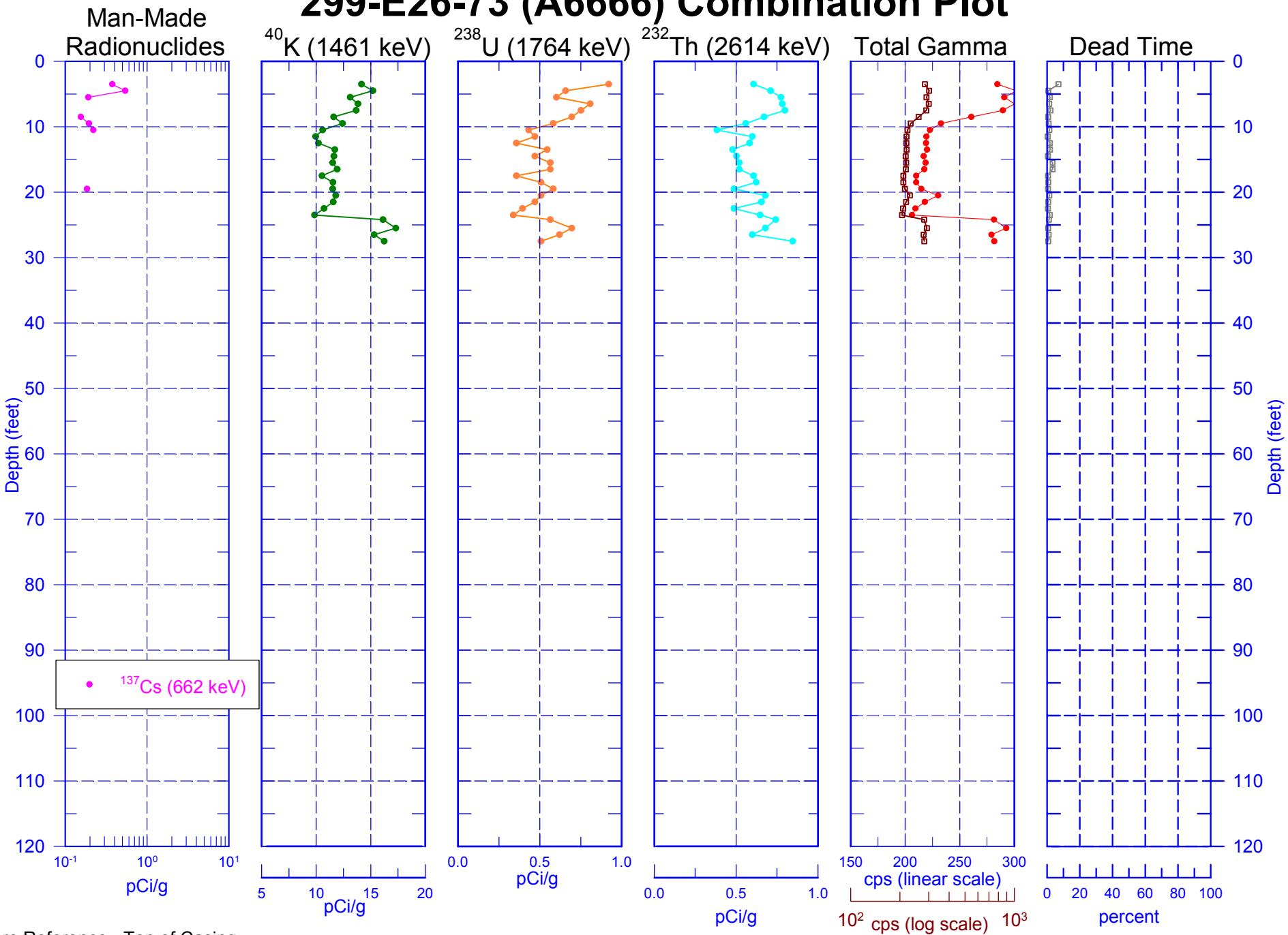
Natural Gamma Logs



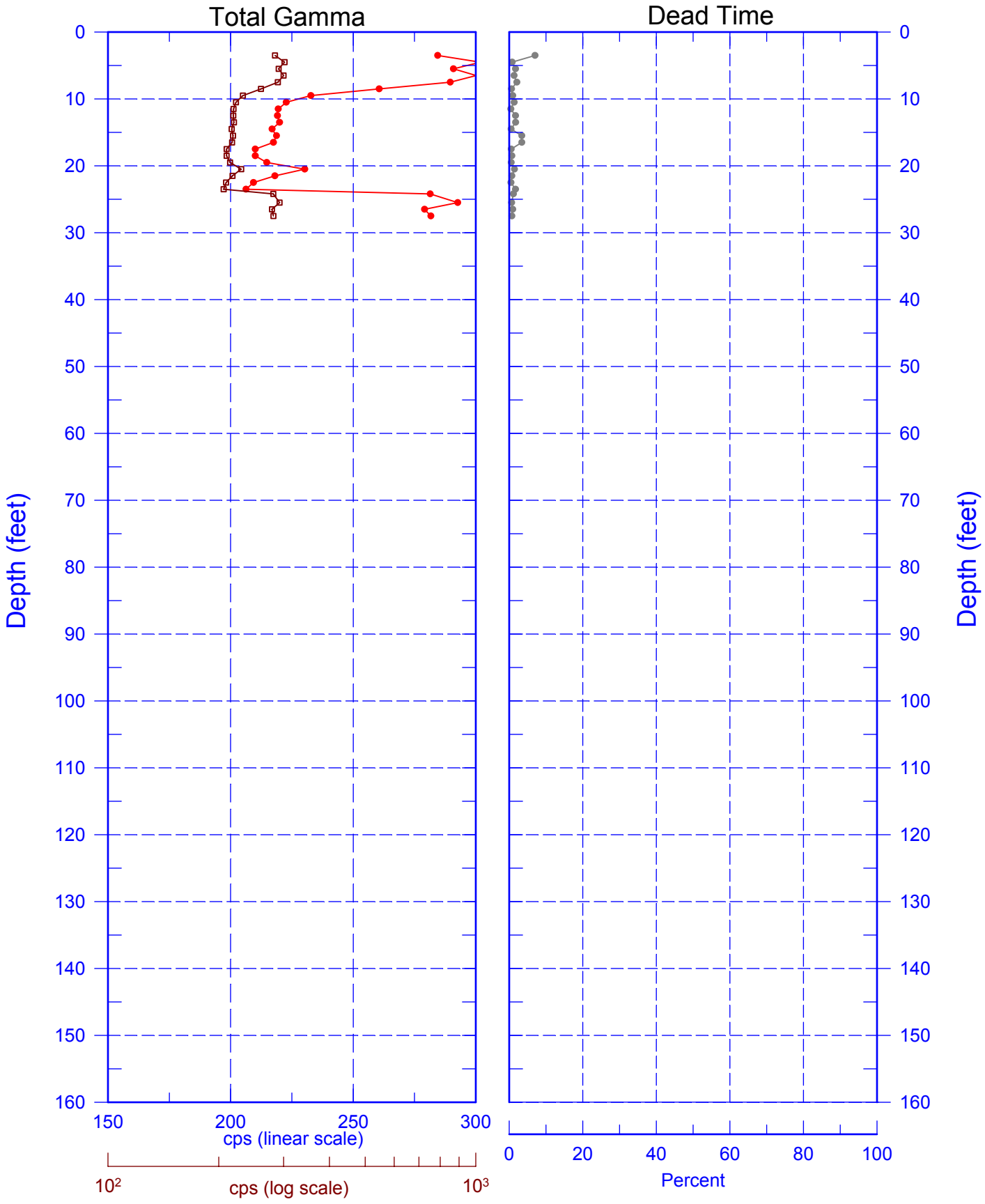
Zero Reference = Top of Casing

299-E26-73 (A6666) Combination Plot



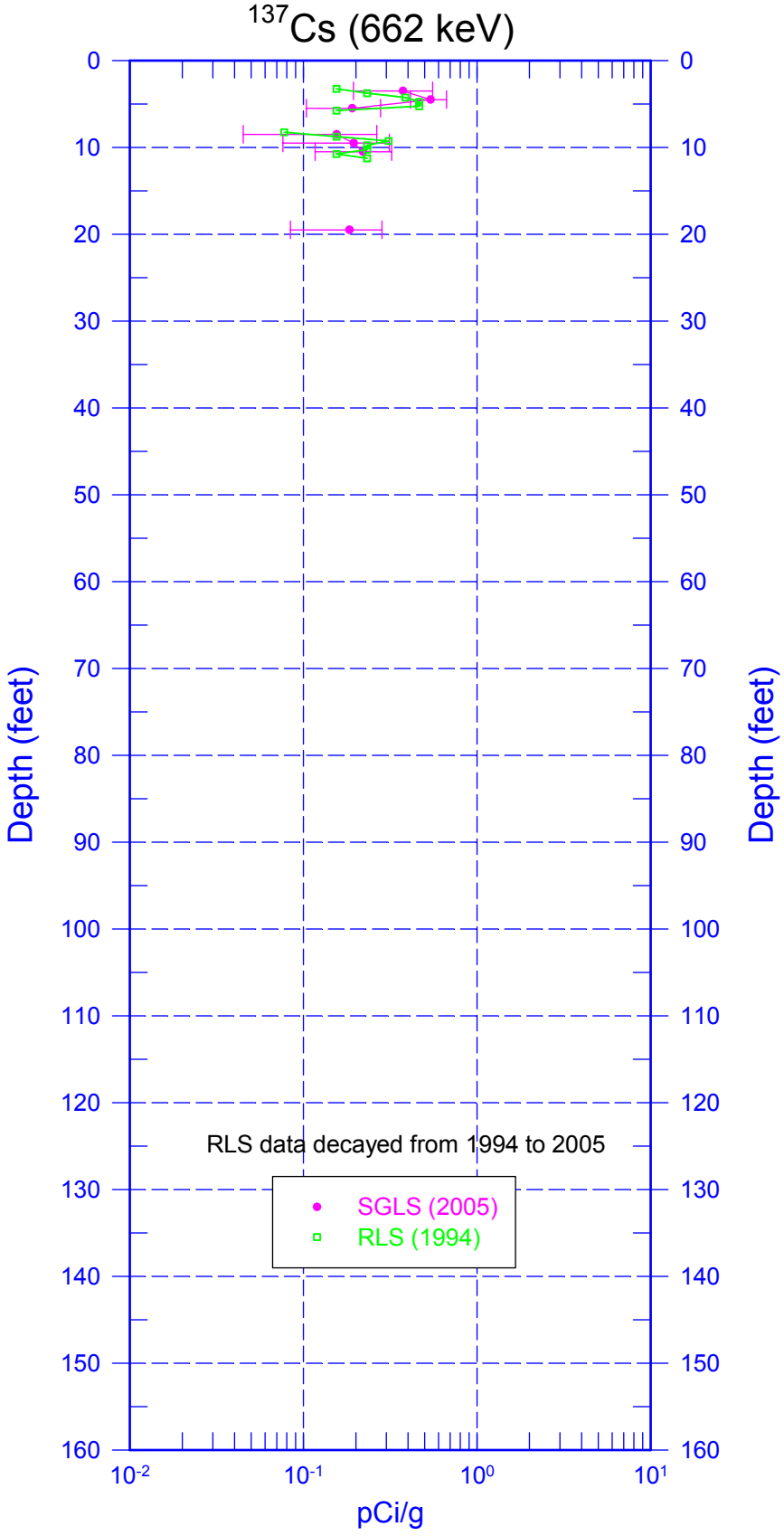
Zero Reference - Top of Casing

299-E26-73 (A6666)
Total Gamma & Dead Time



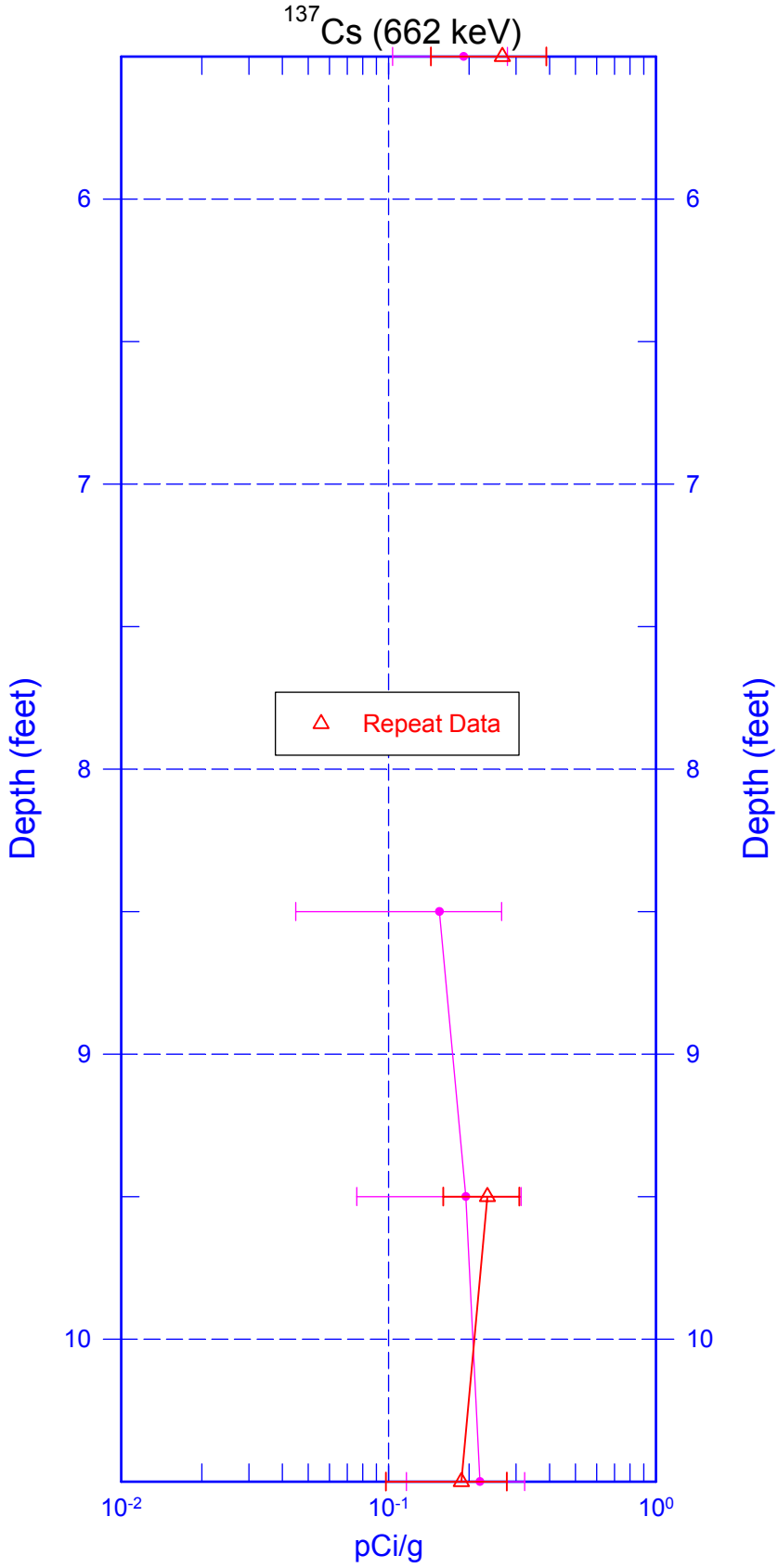
Reference - Top of Casing

299-E26-73 (A6666)
SGLS & RLS Comparison



Zero Reference - Top of Casing

299-E26-73 (A6666)
Repeat of Man-Made Radionuclides



Zero Reference - Top of Casing

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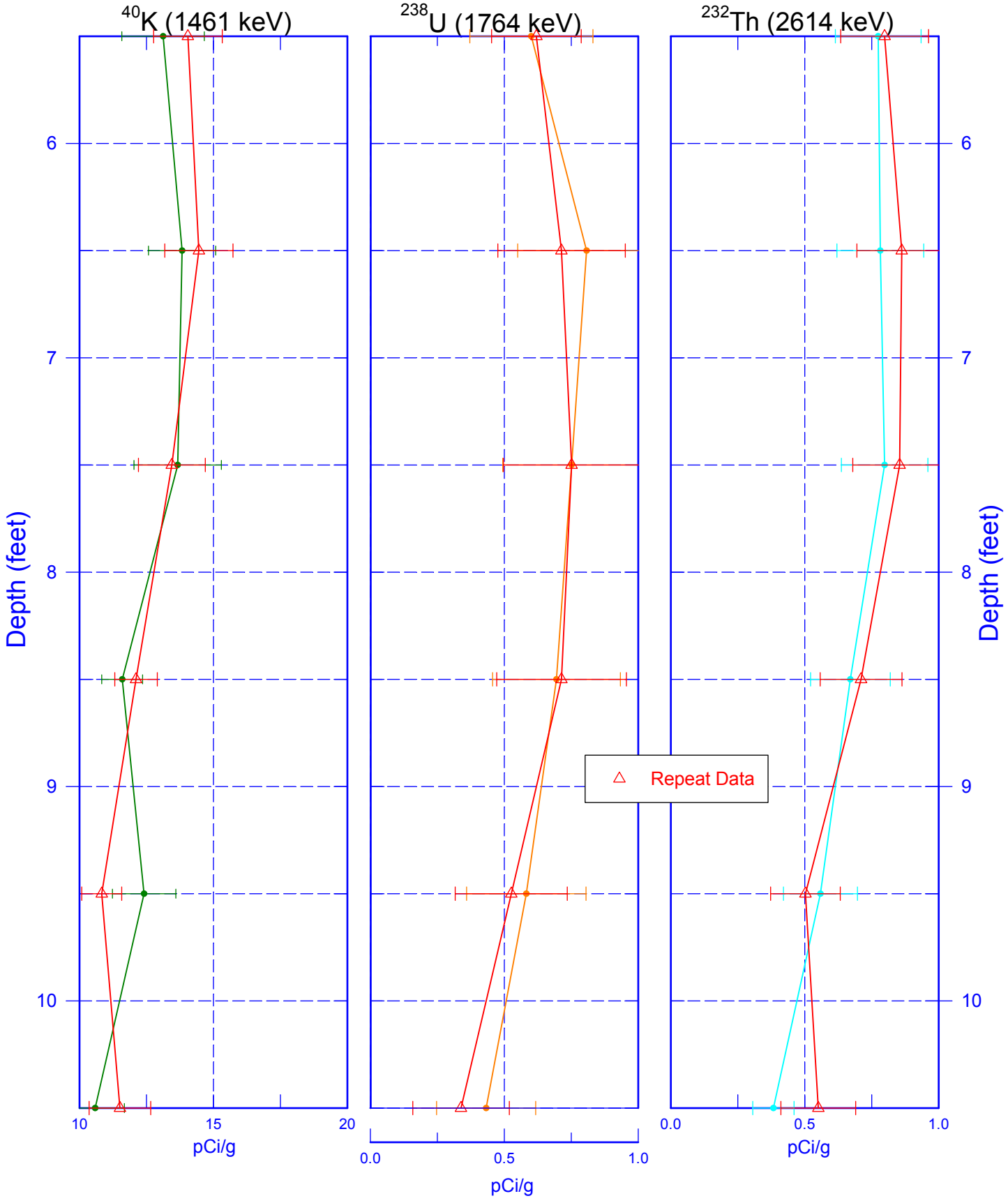
Repeat Section of Natural Gamma Logs



Zero Reference - Top of Casing